cept where we join forces to clean up the affinity reagent market.

http://dx.doi.org/10.1016/j.euprot.2015.07.004

Improving productivity and quality in Biobanking: The need for synergy between industry, academia, and the public sector

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The mission of the recently launched EuPA Biobank Initiative (www.eupa-biobank.eu) is to provide a forum and a knowledge platform to the EuPA community regarding best biobanking practices for a range of different applications and situations, including both classical biobanking issues such as standardized guidelines for successful in-house biobanking or evaluation of sample stability and quality, as well as more recently identified issues such as under-utilization of biobank materials. These goals will be attained primarily by acting as a link between the extensive experiences collected by the EuPA community and the European and international biobanking organizations, and ideally also to patient advocacy groups and the biotech and pharma industry. The potential benefits of providing a forum and easy access to this type of information to EuPA and the scientific community at large are manifold, including improved quality of future sample collections and biobanks, improved quality of the research produced from these samples collections, as well as increased output and productivity from existing biobanks. We are convinced that, in order to reach extraordinary results, academia, industry, and the public sector need to join forces. Through joint efforts, we can contribute to moving biomedical proteomics research beyond basic findings into clinical practice.

http://dx.doi.org/10.1016/j.euprot.2015.07.005

Independent validation initiative

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The reproducibility of scientific results is increasingly in the spotlight within the scientific community and even beyond. As one of the keystone reagents for proteomics research, antibodies are of particular interest in this context. Commercially available antibodies that do not perform according to expectation are putting a considerable load in financial terms as well as in terms of invested time on the end users.

As one of the leading online distributors of 1.5 million proteomics products from more than 180 suppliers, Antibodies-online is committed to provide high quality Independent Validation with our partner Science Exchange to provide reproducible validation data for selected applications according to our customer's requirements.

Since its inception in July 2013 more than 275 validations of antibodies and ELISA kits have been carried out. In this time window we have received almost 3000 validation requests from our customers. This interest illustrates the need for a program that offers relevant, independent, and standardized validation data.

http://dx.doi.org/10.1016/j.euprot.2015.07.006

Novel product development and future directions in support of proteomics standardization, biobanking, and binder validation using CRISPR knockout technology

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Sigma–Aldrich has a well-established history in the formulation of analytical standards, including a portfolio of peptide and protein standards for the development and evaluation of proteomics workflows. We have participated in several interlaboratory studies with organizations such as the ABRF and ProteoRed. Commercialization of associated reference materials allows the proteomics community to troubleshoot and optimize sample preparation protocols and performance deficiencies of MS and LC systems. We are interested in further activities aimed at standardization and QC to improve the reproducibility of results within and across laboratories.

As a company Sigma–Aldrich is interested in providing standards and kits which can be used to assess the integrity of proteins and their PTMs within archived samples (serum, plasma, and tissue) to ensure their suitability for use in future analyses. Additionally, we are interested in developing affordable solutions for protein sample preservation and sample QC tests which can be used to ensure the long-term integrity of samples to be archived within biobanks.

We are also interested in exploring the utility of using CRISPR knockout technology to validate Ab specificity. Validating antibody specificity using knockdown technologies, such as siRNA and shRNA, can be challenging for proteins with low expression levels and/or long half-lives. Since CRISPR technology is highly efficient in creating specific and permanent genetic knockout mutations, the treated cell population should have significantly more null cells compared to the mock treated cell population.

Sigma–Aldrich anticipates this will allow more clear measurement of differences between treated and untreated cells.

http://dx.doi.org/10.1016/j.euprot.2015.07.007